Relative Pathogenicity and Fungicide Sensitivity of Isolates of Rhizoctonia *and Other Fungal Pathogens and the Disease Responses of Seashore Paspalum and Zoysiagrass Cultivars*

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Objectives:

1. To confirm pathogenicity of *Rhizoctonia zeae* on seashore paspalum and screen isolates of *R. solani* and *R. zeae* to different fungicides.
2. To confirm whether isolates of *Fusarium* or *Microdochium spp.* obtained from diseased seashore paspalum samples are pathogenic. If so, identify and characterize these isolates, and develop diagnostic responses and management recommendations.
3. Screen existing seashore paspalum and zoysiagrass cultivars for resistance to various pathogens.
4. Screen zoysiagrass germplasm accessions to select for resistance to *Rhizoctonia spp.*

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Project Duration: three years
Total Funding: $86,000

Prior to initiating disease resistance screening, variability within isolates of the dollar spot pathogen, *Sclerotinia homoeocarpa*, was investigated. Eighteen isolates were collected in Florida from various host species during both cool and warm seasons, between February 2004 and February 2006. Nine vegetative compatibility groups (VCGs) were identified among 14 isolates of *S. homoeocarpa*. No correlation was observed between VCG and host, time of year, or growth rate. There was some association with location in that isolates from the same green and some isolates from multiple counties in central Florida were in the same VCG.

Four other isolates were found to have a high degree of homology to a genetic sequence published for *Poculum henningsianum*. These four isolates also differed morphologically from dollar spot isolates, and symptoms in the field were different: patches were similar in size to typical dollar spot symptoms, however, the affected turfgrass was very white in appearance and small sclerotial-like structures were observed embedded in plant tissue. Pathogenicity of four isolates of *P. henningsianum*, one of which originated from seashore paspalum, will be investigated further.

An isolate of *Rhizoctonia solani* was collected in December 2005 from large patch symptoms on a seashore paspalum fairway. The anastomosis group was confirmed by primers specific for AG 2-2LP. Additional isolates of *R. solani* and *R. zeae* will be characterized prior to using these isolates for disease resistance screening in zoysiagrass and seashore paspalum.

In previous year in a few clinic samples of seashore paspalum exhibiting blight symptoms, *Fusarium spp*. were commonly isolated from the turfgrass whereas other pathogens were not detected. In 2005, another isolate was obtained from symptomatic tissue in a seashore paspalum sod field. However, this isolate has spore characteristics that may place it in a different genus (possibly *Microdochium*) rather than *Fusarium*. Preliminary pathogenicity studies were conducted using spore suspensions applied to foliage of seashore paspalum cultivars grown in the greenhouse. Resulting symptoms included leaf tip yellowing and dieback, similar to symptoms observed in the field.

An isolate of Rhizoctonia solani *was collected in December 2005 from large patch symptoms on a seashore paspalum fairway.*

In July 2006, we celebrated the grand opening of the new UF IFAS turfgrass research facility, the G.C. Horn Memorial Turfgrass Field Laboratory located at the Plant Science Research and Education Unit, near Citra, FL. All zoysia accessions were planted in replicated space plant nurseries during summer 2005. These nurseries have been evaluated for establishment, winter color, genetic color, density, turf quality, and for *Bipolaris* leaf spot that occurred summer 2006.

Commercial cultivars of seashore paspalum were established on tees and greens and in replicated plots in 2005 at the new turfgrass facility. Seashore paspalum germplasm accessions are currently being increased for planting in replicated nurseries for early 2007. Information similar to that collected for the zoysia trials will be gathered on the seashore paspalum. In 2006, dollar spot and large patch occurred on seashore paspalum tees at the new facility, and fungicide trials were established during these outbreaks.

Summary Points

- Isolates of *Sclerotinia homoeocarpa*, *Rhizoctonia spp.*, and *Fusarium spp.* or *Microdochium spp*. are being characterized for use in disease resistance screening
- Four isolates of *Poculum henningsianum* were recovered from symptoms similar to dollar spot. The isolates differ morphologically from *S. homoeocarpa.*
- Zoysiagrass and seashore paspalum cultivars and germplasm accessions were established at the new UF IFAS turfgrass research facility near Citra, FL.